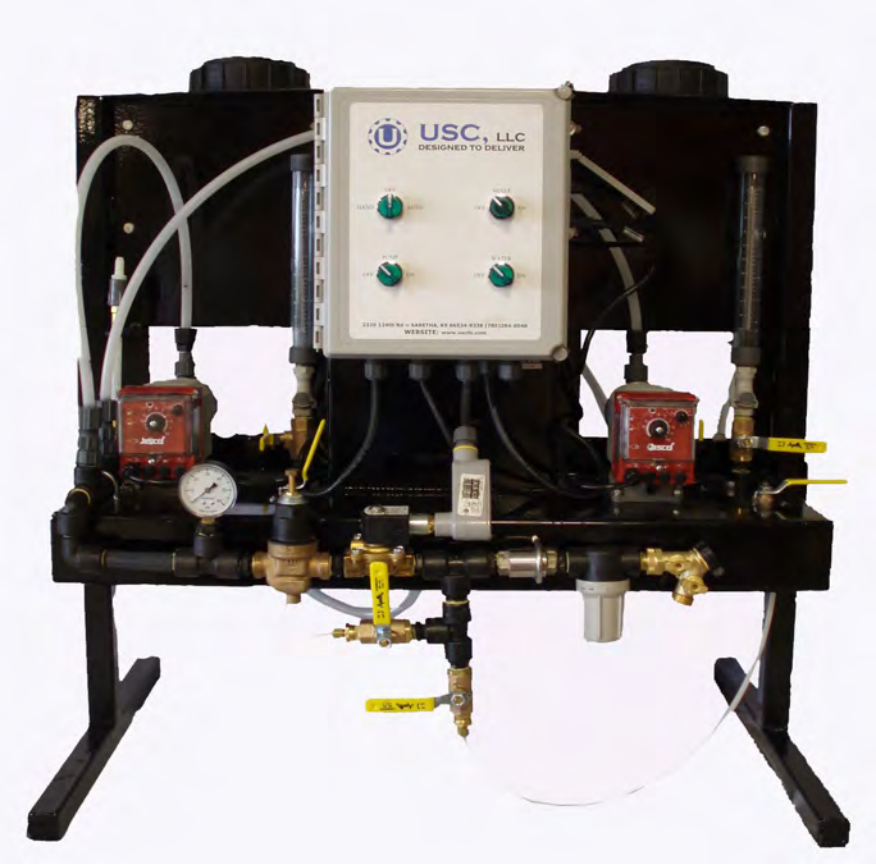
CONVEYOR TREATER



Operator's Manual






2320 124th Road Sabetha, Kansas 66534 P: (785) 431-7900 F: (785) 431-7950 www.uscllc.com

Revision Effective 11/11/2011

INTRODUCTION

Thank you for choosing USC LLC for your equipment needs. We appreciate your business and will work diligently to ensure that you are satisfied with your choice.

OVERVIEW

The purpose of this manual is to provide you with the basic information needed to operate and maintain the USC Conveyor Treater. It does not hold USC, LLC liable for any incidents or injuries that may occur.

OPERATOR RESPONSIBILITIES

As the purchaser/owner/operator of this equipment and control system, you have an obligation to install, operate, and maintain the equipment in a manner that minimizes the exposure of people in your care to any potential hazards inherent in using this equipment. It is critical that the owner of this equipment:

- Has a clear and documented understanding of the process this machine is being used in and of any resulting hazards or special requirements arising from this specific application.
- Allow only properly trained and instructed personnel to install, operate, or service this equipment.
- Maintain a comprehensive safety program involving all who work with this machine and other associated process equipment.
- Establish clear areas of staff responsibility (e.g. operation, setup, sanitation, maintenance, and repairs).
- Provide all personnel with necessary safety equipment.
- Periodically inspect the equipment to insure that the doors, covers, guards, and safety devices are in place and functioning, that all safety instructions and warning labels are intact and legible, and that the equipment is in good working order.
- In addition to the operating instructions, observe and enforce the applicable legal and other binding regulations, national and local codes.

As the person with the most to gain or loose from working safely, it is important that you work responsibly and stay alert. By following a few simple rules, you can prevent an accident that could injure or kill you or a co-worker.

- Disconnect, lockout, and tag out electrical and all other energy sources before inspecting, cleaning, servicing, repairing, or any other activity that would expose you to the hazards of electrical shock.

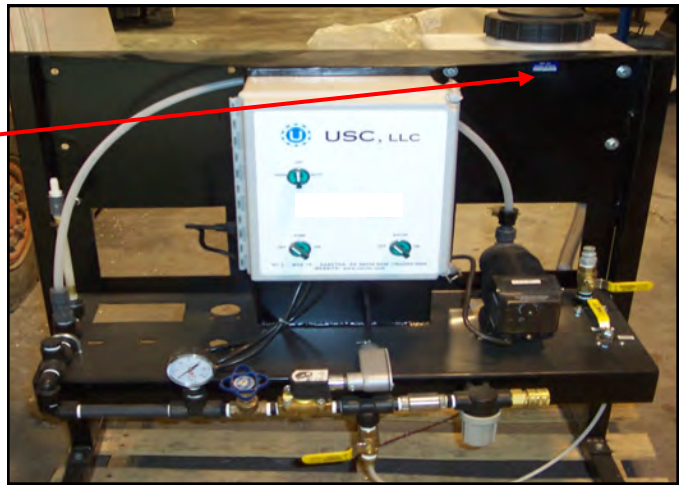
- Do not operate, clean, or service this equipment until you have read and understood the contents of this manual. If you do not understand the information in this manual, bring it to the attention of your supervisor, or call your local USC dealer for assistance.
- Any operator who is known or suspected to be under the influence of alcohol or drugs should not be allowed to operate the equipment.
- Understand and follow the safety practices required by your employer and this manual.
- **PAY ATTENTION** to what you and other personnel are doing and how these activities may affect your safety.
- **Failure to follow these instructions may result in serious personal injury or death.**

RECEIVING YOUR EQUIPMENT

As soon as the equipment is received, it should be carefully inspected to make certain that it has sustained no damage during shipment and that all items listed on the packing list are accounted for. If there is any damage or shortages, the purchaser must immediately notify your USC dealer. Ownership passes to purchaser when the unit leaves the USC, LLC. premises. The purchaser is responsible for unloading and mounting all components of the equipment.

Document the serial number of the machine for future reference. The serial number is located on the right side of the control panel frame.

Serial Number



SERIAL NUMBER:_____

TABLE OF CONTENTS

SAFETY INSTRUCTIONS

SECTION A

Every year accidents in the work place maim, kill, and injure people. Although it may be impossible to prevent all accidents, with the right combination of training, operating practices, safety devices, and operator vigilance, the number of accidents can be significantly reduced. The purpose of this section is to educate equipment users about hazards, unsafe practices, and recommended hazard avoidance techniques.

SAFETY WORDS AND SYMBOLS

It is very important that operators and maintenance personnel understand the words and symbols that are used to communicate safety information. Safety words, their meaning and format, have been standardized for U.S. manufacturers and published by the American National Standards Institute (ANSI). The European Community (E.C.) has adopted a different format based on the International Standards Organization (I.S.O.) and applicable machinery directives. Both formats are presented below. Graphic symbols are not standardized, but most manufacturers will use some variation of the ones seen in this manual.

Indicates an imminently hazardous situation which, if not avoided, **will** result in death or serious injury.

Indicates a potentially hazardous situation which, if not avoided, **could** result in death or serious injury.

Indicates a potentially hazardous situation which, if not avoided, **may** result in minor or moderate injury and/or property damage.

Provides additional information that the operator needs to be aware of to avoid a potentially hazardous situation.

Mandatory Lockout Power Symbol. Disconnect, lockout, and tag out electrical and other energy sources before inspecting, cleaning, or performing maintenance on this panel.

International Safety Alert Symbol. The exclamation point (!) surrounded by a yellow triangle indicates that an injury hazard exists. However, it does not indicate the seriousness of potential injury. The exclamation point (!) is also used with the DANGER, WARNING, and CAUTION symbols so the potential injury is indicated.

Electrocution Hazard Symbol. This symbol indicates that an electrocution hazard exists. Serious injury or death could result from contacting high voltage.

International Electrocution Hazard. This symbol indicates that an electrocution hazard exists. Serious injury or death could result from contacting high voltage.

Mandatory Read Manual Action Symbol. (I.S.O. format) This symbol instructs personnel to read the Operators Manual before servicing or operating the equipment.

Mandatory Read Manual Action Symbol. This symbol instructs personnel to read the Operators Manual before servicing or operating the equipment.

Notice is used to notify people of important installation, operation, or maintenance information which is not hazard related.

LOCKOUT / TAGOUT PROCEDURES

Lockout/Tag out is the placement of a lock/tag on an energy isolating device in accordance with an established procedure. When taking equipment out of service to perform maintenance or repair work, always follow the lockout/tag out procedures as outlined in ANSI Z344.1 and/or OSHA Standard 1910.147. This standard "requires employers to establish a program and utilize procedures for affixing appropriate lockout devices or tag out devices to energy isolating devices and to otherwise disable machines or equipment to prevent unexpected energizing, startup, or release of stored energy in order to prevent injury to employees."

CONTROLLED STOP

This is the stopping of machine motion by reducing the electrical command signal to 0 (zero) once the stop signal has been recognized.

HAZARD REVIEW

Electrocution Hazard

Electrocution accidents are most likely to occur during maintenance of the electrical system or when working on or near exposed high voltage wiring. This hazard does not exist when the electrical power has been disconnected, properly locked, and tagged out.

Automatic Start Hazard

This seed treating system is usually controlled by an automated system and may start without warning. Failure to properly disconnect, lockout, and tag out all energy sources of remotely controlled equipment creates a very hazardous situation and could cause injury or even death. PLEASE STAY CLEAR AND BE ALERT.

YOU are responsible for the **SAFE** operation and maintenance of your USC, LLC Seed Treating System. **YOU** must ensure that you and anyone else who is going to operate, maintain, or work around the conveyor be familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alert you to good safety practices that should be adhered to while operating the treater.

Remember, **YOU** are the key to safety. Good safety practices not only protect you, but also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- Conveyor Treater owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually thereafter per OSHA (Occupational Safety and Health Administration) regulation 1928.57.
- The most important safety device on this equipment is a **SAFE** operator. It is the operator's responsibility to read and understand **ALL** Safety and Operating instructions in the manual and to follow them. All accidents can be avoided.
- A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- Think SAFETY! Work SAFELY!

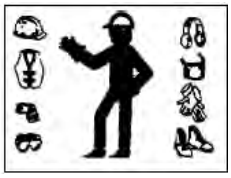
GENERAL SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or unplugging the treater.
2. Only trained persons shall operate the seed treater. An untrained operator is not qualified to operate the machine.

3. Have a first-aid kit available for use should the need arise, and know how to use it.

4. Provide a fire extinguisher for use in case of an accident. Store in a highly visible place.

5. Do not allow children, spectators or bystanders within hazard area of machine.
6. Wear appropriate protective gear. This includes but is not limited to:



   - A hard hat
   - Protective shoes with slip resistant soles
   - Protective goggles
   - Heavy gloves
   - Hearing protection
   - Respirator or filter mask

7. Place all controls in neutral or off, stop motor, and wait for all moving parts to stop. Then disable power source before servicing, adjusting, repairing, or unplugging.

8. Review safety related items annually with all personnel who will be operating or maintaining the Conveyor Treater.

OPERATING SAFETY:

1. Read and understand the Operator's Manual and all safety signs before using.
2. Disconnect and disable electrical supply completely and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Clear the area of bystanders, especially children, before starting.
4. Be familiar with the machine hazard area. If anyone enters hazard area, shut down machine immediately. Clear the area before restarting.
5. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
6. Stay away from overhead obstructions and power lines during operation and transporting. Electrocution can occur without direct contact.
7. Do not operate machine when any guards are removed.
8. Inspect welds and repair if needed.

MAINTENANCE SAFETY

1. Review the Operator's Manual and all safety items before working with, maintaining or operating the Conveyor Treater.
2. Place all controls in neutral or off, stop motors, disable power source, and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Follow good shop practices:

   Keep service area clean and dry.
   Be sure electrical outlets and tools are properly grounded.
   Use adequate light for the job at hand.

4. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
5. Clear the area of bystanders, especially children, when carrying out any maintenance and repairs or making any adjustments.
6. Before resuming work, install and secure all guards when maintenance work is completed.
7. Keep safety signs clean. Replace any sign that is damaged or not clearly visible.

- Think SAFETY! Work SAFELY!

REMEMBER—If Safety Signs have been damaged, removed, become illegible, or parts replaced without safety signs, new signs must be applied. New safety signs are available from your Authorized Dealer.

EQUIPMENT OVERVIEW

SECTION B

-**The Conveyor Treater** is a compact unit designed to meter chemical and water separately, and mix the two together to apply to the seed. The spray hood moves the seeds in a manner that allows the entire surface to get even coating. The unit comes in two sections, the main control panel and the spray hood.

-Spray Hoods are manufactured in bolt together sections that allow the user to custom fit the width of the hood to fit their cutting set up. Sections consist of a 24" center section that can accept either a 6" or 12" extensions. For hoods of 48" or wider two 24" sections are required.

COMPONENTS OF THE CONVEYOR TREATER

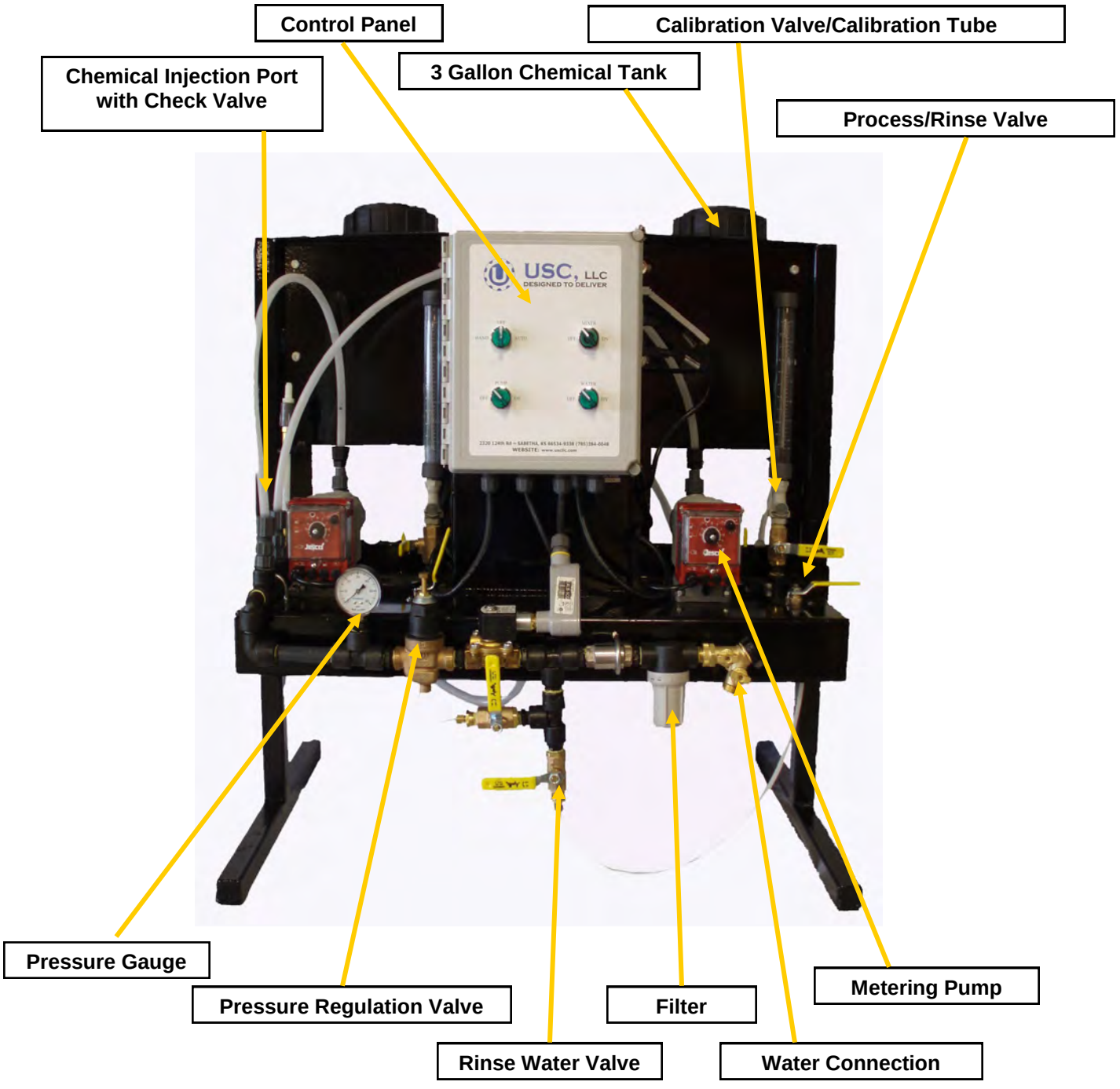
Main Control Panel

1. 3-Gallon chemical tank with mix motor
2. Electric chemical metering pump
3. Electric on/off water valve
4. Chemical mixing manifold
5. Calibration tube
6. Main control box

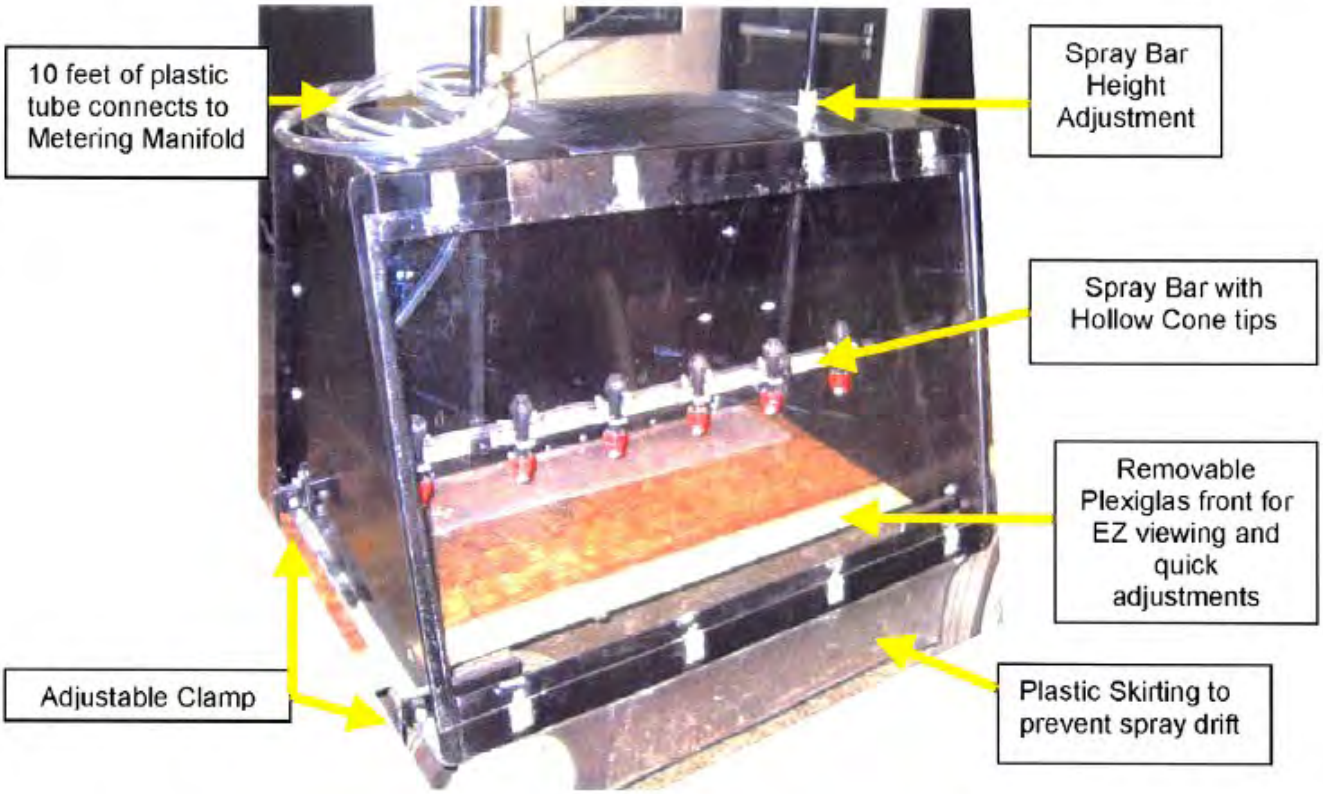
Spray Hood

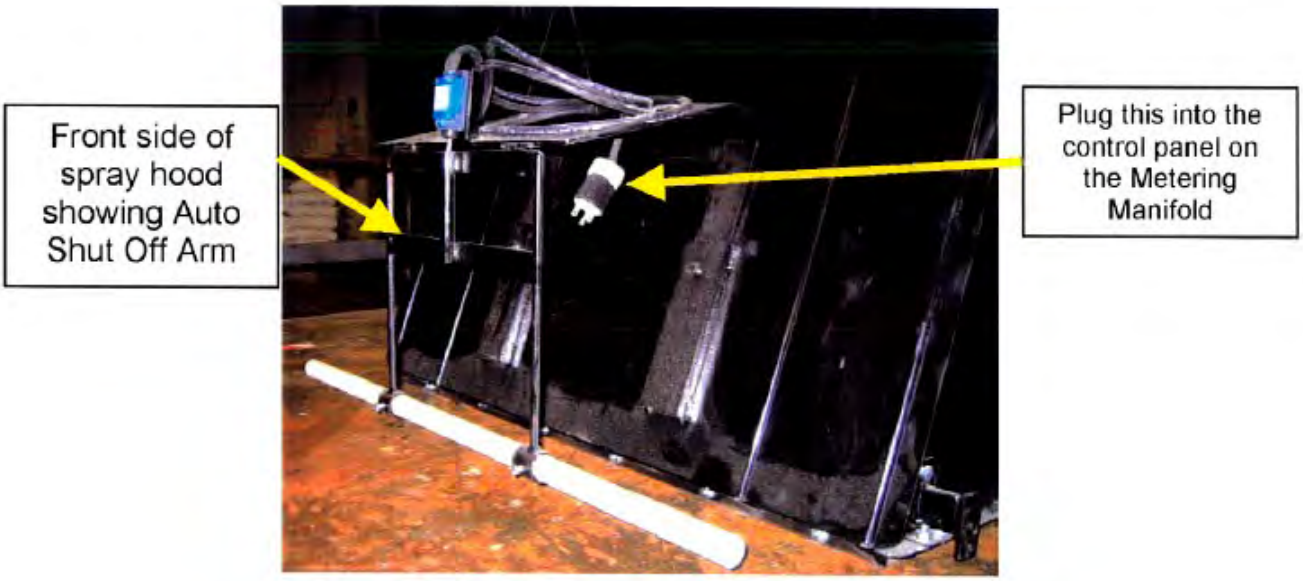
1. Metal hood with Plexiglas panels
2. Spray bar with hollow cone nozzles
3. Plastic skirting
4. Auto shut-off valve

Main Control Panel parts Identification



Spray Hood parts identification





SECTION C INSTALLATION

When your Conveyor Treater firsts arrives make sure you inspect the equipment to ensure nothing was damaged or broken during shipment to your facility.
Inside the chemical tank should be your equipment manual, a calibration cylinder, and any other associated misc parts for your Conveyor Treater. Check to make sure everything is removed before operation!!

SEED TREATING SITE REQUIREMENTS

At your site you need a seed piece handling system capable of rolling or tumbling the seed pieces so that all surfaces are treated. The Conveyor Treater is designed to treat seed that is being fed through the spray hood by a conveyor or rolling table.
Additionally the seed will need to be fed across the spray pattern uniformly enough to allow for the entire roller area to be covered with seed one layer deep.

Electrical

You will need to supply electrical power to the Conveyor Treater liquid applicator. A properly grounded 120 volt single phase circuit must be supplied for operation.
If an extension cord is used make sure the cord has a ground wire, not damaged or frayed, and can handle the required amperage being used for the treater.
The treater can be plugged into a standard 120 volt receptacle located at your site.

Water Supply

For this unit to operate properly you will need a water supply that has a constant pressure of 25-40 psi. The pressure is used for atomization of the seed treatment.

Equipment Location

The Conveyor Treater is intended to be used in a variety of environments such as cutting sheds, indoors, or outdoors. However you need to be aware that this equipment is not rated as “Weather Proof.” When not being used the Conveyor Treater should be stored indoors to prevent exposure to inclement weather. If you are to leave your machine outside overnight be sure to cover the main control panel with a tarp to protect it from the elements.

SPRAY HOOD INSTALLATION

Once the spray hood is assembled you will be ready to mount it on your roller table or conveyor. The use of a roller table is critical, as the seed pieces need to tumble or roll while being treated under the spray hood. The roller table used for application of seed treatment products should be located down stream of personnel that are used for any final sorting or cutting. In some operations a spate roller table may be needed. The type of roller table that is recommended would be the “Acorn” type rollers to get maximum rolling action. **Roller tables are only used with this treater when treating potatoes**

1. With the help of another person, set the spray hood on top of the roller table with the auto shut off bar facing the direction of where the seed will be coming from. Center the spray hood on the roller table and fasten it to the side rails to prevent vibration from moving it.

2. Attach the flexible plastic skirting material to the bottom edges of the hood and trim as needed. It is important that the skirting be installed so that air moving around the equipment will not cause the seed treatment to drift off target. Once the skirting is trimmed for height you may want to make a few slits from top to bottom too create multiple sections so that the seed will not have to push against the entire width of the skirt.

3. The auto shut off bar will need to be lowered so the seed feeding into the spray hood will come in contact with it and activate the chemical treatment. You may need to cut the plastic tubing to shorten it as needed. Once you begin treating potatoes you may need to re-adjust the height of the auto shut off bar to allow it to function properly. If the bar is too low, seed pieces could jam the switch and the system will not stop chemical flow when it no longer has seed under the spray hood. The top of the bar should be in contact with 1/3 of the seed pieces.

4. The spray hood also has an electrical cord attached to the auto shut off bar. This electrical cord will need to be plugged into the main control panel. This will allow for the unit to be turned on and off automatically during the treating of seed.

MAIN CONTROL PANEL INSTALLATION

Control Panel

Position the Main Control Panel (Metering Manifold) as close as practical to the spray hood. Be aware that you will want to have easy access to both the front and back sides of the control panel. The Conveyor Treater comes with 10 feet of clear plastic tubing that is used to connect the control panels chemical pumps to the spray hood. Cut the tubing to your desired length to eliminate excess line. This is to help eliminate any kinks or loops in the line.

The Conveyor Treater is designed to use a water hose with a line pressure of 25-40 PSI as the source of water for the chemical dilution and also as the pressure source for proper atomization through the hollow cone nozzles of the spray hood. On the main control panel you will find a hose end coupler that will fit most garden hose fittings. Connecting your water line to that and turning on the water will send water to the metering manifold.

Do not connect the water line until you are ready to test or treat.

Test the Unit

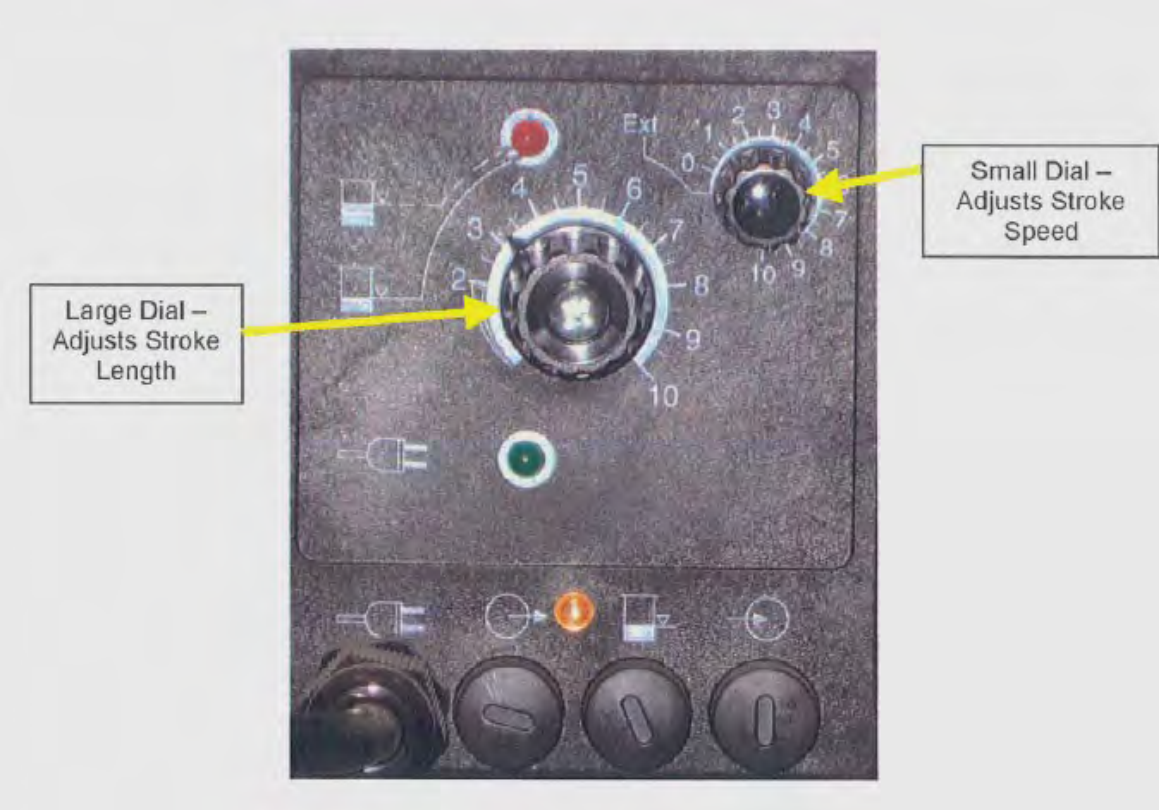
After installation you need to test the unit to ensure it is working properly. Before the water line is hooked up and before you add chemical, place the switches in the on and off positions to make sure the chemical pump is working properly. Add a small amount of water to the chemical tank and operate the unit. This will identify any leaks that may be in the system and will also help with priming of the metering pump.

Chemical Metering Pump

The chemical metering pump is one of the more important features of the Conveyor Treater. It's function is to accurately meter the seed treatment and inject it into a pressurized water line. The seed treatment will mix with the water prior to being applied to the seed.

The pump consists of two sections. The dry side that houses the controls and solenoid. And the wet side that has the diaphragm and check valves. The pump operates by the motion of a magnetic solenoid to stroke a flexible diaphragm to create both suction and push that meters the chemical. The stroke can be altered in two ways. Increasing the stroke "length" will cause more product to be pumped each time the solenoid actuates. Increasing the speed will cause the pump to stroke faster. Causing more product to be pumped.

Open the clear plastic cover to gain access to both speed and stroke length adjustment dials.



The large dial in the center will control the stroke length. **Since the dial has a mechanical link to the flexible diaphragm it should not be turned unless the pump is turned on and operating.** Operating the pump dry will not harm it. Turning or forcing this dial to turn while the pump is off will shorten the life of the diaphragm. When your first receive your pump, the large dial may not move freely even when the pump is working . The Philips screw in the center of the dial is also a “lock down” screw. Loosening the screw slightly should allow the dial to turn freely when the pump operates.

Pumps of this type cannot accurately meter chemicals when the stroke length is very short. **Do not operate the pump with the large dial below number 3.**

The small dial controls the speed of the solenoid. A speed setting of 10 will cause it to give about 100 strokes a minute which is the max speed. Moving the dial to 5 will cause it to run at about 50 strokes a minute. Always use the highest setting possible.

Setting the pump correctly involves both the stroke length and frequency. Begin your calibration with the pump speed at 10 and lower the length dial until you get the required amount of chemical. If you reduce the length dial down to 4 and still need less product, begin reducing the speed dial until the proper rate is met.

SECTION D CALIBRATION

The initial calibration steps will involve spraying water in the unit. The area under the spray hood will get wet. Perform these steps in an area where water can be safely sprayed.

Determine how fast you will be treating seed. To assist in your calculations, determine how many pounds of seed you will be treating in one minute. Divide the pounds of seed treated in one minute by 100. This will be the number of hundredweights (cwt) you will be treating per minute. The number of hundredweights per minute will be used to determine how much seed treatment will be needed for proper application of your seed.

Determine how fast you will be treating per minute. ex: 4 cwt per minute.

How many nozzle tips do you have in your hood? ex: 5 spray tips

What's your rate of water per hundred pounds of seed? ex: 3.7 ounces per cwt

Multiply your ounces per cwt of water by you cwt per minute ex: 3.7 ounces x 4 cwt =14.8 total ounces per minute.

Take your total ounces of water required per minute divided by the number of spray tips in your hood = fluid ounces required per tip.
Ex: 14.8 ounces per minute / 5 spray tips = 2.96 ounces per tip.

Look at your spray tips to determine the size you have installed. Determine the fluid ounces required from each tip. Look at the spray tip selection chart on the next page and find the fluid ounces that are closest to your needs. If you cant find an exact match. Look at other tip sizes until you find your liquid requirements. Ounce you've located a match for your tips, follow the chart up to get the required operating pressure.

Tip sizes 1, 2, 3, can operate down to 20 psi. Tip sizes 4 and 6 use pressures of 25 psi or greater. Do not pressure over 40 psi.

See next page for the spray tip chart and example.

SPRAY TIP SIZE CHART

		Water Pressure in PSI				
		20	25	30	35	40
Tip Size	1	1.7	2	2.1	2.3	2.4
	2	3.1	3.5	3.9	4.2	4.4
	3	4.5	5	5.5	5.8	6.1
	4	NA	6.1	6.8	7.2	7.7
	6	NA	8.5	9.5	10.4	11.2

Values given are in Fluid Ounces Per Minute Through One Tip

Example: We need 2.96 ounces a minute per nozzle. The closest would be 3.1 fluid ounces. So we would use the number 2 tips with 20 psi.

TESTING THE SYSTEM

1. At each step of this process, look for leaks that may have developed during shipment or operation. Repair all leaks before you continue.
2. Close all valves and turn all switches to the off position. Turn the **process/rinse** valve to process.
3. Connect your water line to the metering manifold and turn on your water supply. Set the switch marked **Auto/off/Hand** to **Hand.**
4. On the control panel turn the switch marked water to the on position. This will open the electric water valve and allow water to start flowing from the spray bar. If water is not flowing to the spray bar, open the pressure-regulating valve to allow water to flow through. After all air bubbles have passed through the spray tips, adjust the water pressure to the pressure you selected from the water pressure chart. Once the pressure is set, hold a graduated cylinder under one of the nozzles and start timing using a stopwatch. After one minute remove the cylinder from the nozzle and determine the amount of water collected.
5. If too little water is collected, adjust the pressure up a small amount, vice versa if it is to much water. Repeat the process until the proper amount of water is achieved. Be sure to check sll nozzles.

6. Check the spray pattern of each nozzle to make sure a fine mist is spreading across the entire roller area. If the side walls of the roller table are getting wet you will want to adjust the height of the spray bar down to a point that allows only about the bottom two inches of the side walls to get any liquid.
7. On the control panel turn the water switch to the off position. The spray bar is equipped with drip less spray bodies. They have a preset pressure of 10 psi. When you turn the water off, water will still be flowing from the spray tips due to pressure in the line. Once the pressure drops to 10 psi the spray will stop.

CHEMICAL CALIBRATION

1. First you will need to prime the pump. Close all valves and turn all switches to the off position. Turn the **Process/Rinse** valve to **Rinse.** Open the **Water Rinse** valve located on the front of the metering manifold. This will allow water to flow into the filter and then through the pump. Wait until the air bubbles have been flushed through and then close the water rinse valve. The pump should now be primed and ready to operate.
2. Leave the water line connected to the metering manifold.
3. On the control panel set the switch marked **Auto/Off/Hand** to **Hand**. This will allow you to operate each of the components individually during the calibration steps.
4. Next open the chemical reservoir shut off valve accessible from the backside of the unit. Reopen the water rinse valve on the front of the unit. Now reposition the **Process/Rinse** valve to about half way between **Process** and **Rinse**. This will allow water to flow to both the pump and up into the chemical reservoir. After about one quart of water has gone into the chemical reservoir, close the chemical reservoir shut off valve, and then the **Water Rinse** valve.
5. Move the **Process/Rinse** valve all the way to **Process**. Then open the chemical reservoir shut off valve. Now open the **Calibration Tube Valve**, This will allow water to flow up into the calibration cylinder. If the calibration tube valve is left open the liquid level will equalize with the level in the chemical reservoir.
6. Close the chemical reservoir **shut off valve** and leave the calibration cylinder tube valve **open**. Turn the **pump switch** to the **on** position to start metering the pump. The two dial on the front of the metering pump are used to set the proper rate needed. Adjust to get the proper chemical flow into the calibration tube. Time for one minute and check to make sure the proper rate is achieved, repeat if necessary.
7. There is also a mixing pump for your chemical reservoir. This will help keep the chemical and water slurry agitated.
8. Talk with your chemical company to get proper treatment rates and water/chemical rates.

TREATING SEED

SECTION E

Make sure you have properly installed, tested, and calibrated your CT series treater prior to treating seed. Not doing so could damage the equipment or cause improper application.

1. Close all valves and turn all switches to the off position. Turn the **Process/Rinse** valve to **Process.**
2. Connect your water line to the metering manifold and turn on your water supply. Open the tank shut off valve.
3. Set the switch marked **Auto/Off/Hand** to **Auto.**
4. Then turn the pump and water switches to **on**. No water or chemical should be delivered at this point.
5. Using your hand, Move the **Auto Shut off Bar** to simulate the flow of seed into the hood. The unit should turn on and off as you do this. Continue to manually operate the unit until you can visually observe the water and chemical treatment being pumped to the spray tips. If you do not prime the system like this the first several pounds of seed will not receive any treatment.
6. Start the flow of seed to the treater, The treater should start as soon as the first seeds push the **Auto Shut off Bar** forward. If you are having issues with seed not fully covering the conveyor or roller table beneath the spray hood or if there is way too much seed, You need to stop the machine and adjust the flow of seed so that it will send the proper amount of seed through the spray hood.
7. Continue monitoring the chemical application rate the entire time your are running.
8. Once all the seed has ran through the spray hood the auto shut off bar will release and shut off the flow of chemical and water to the spray hood.

CHECKING CALIBRATION WHILE TREATING

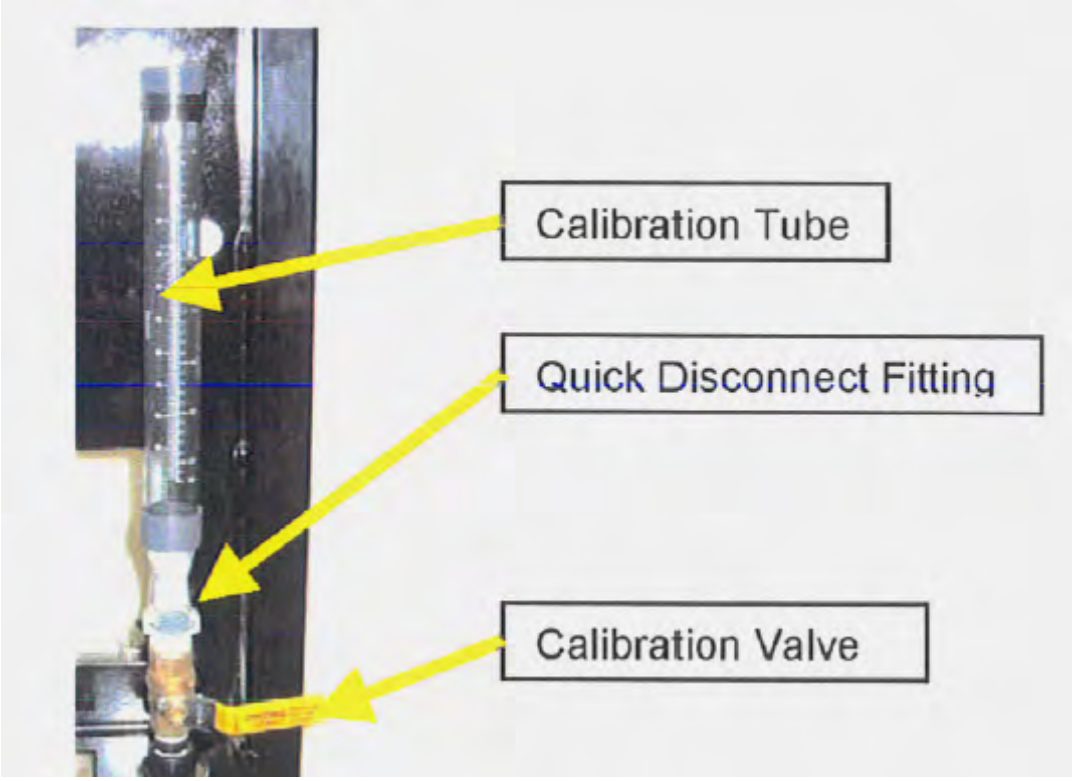
By using the on board calibration cylinder you can meter the amount of chemical you are applying while you are still treating seed. It is connected into the system via a quick connect fitting. The fitting snaps together to mount the cylinder on the valve. To disconnect just push the gray button on the fitting and it will pull right off the valve,

Make sure the cylinder is properly connected before filling with liquid. Open the calibration valve and let the liquid flow into into the calibration cylinder. Once it has filled right down the amount of chemical in the tube. The tube is marked in Milliliters. Now with a stopwatch close the tank shut off valve and start the timer what this will do is pull treatment from the calibration tube instead of the chemical tank. When you get to a minute close the calibration valve and also open the chemical tank valve.

Now that the calibration valve is closed and it is no longer pulling chemical from the calibration cylinder write down the amount of chemical left in the cylinder. You will then figure up how much chemical you used in that minute to see if you are applying the correct amount. If the amount is incorrect make proper adjustments to get your achieved rate.

Always be sure you clean the calibration valve after you run chemical into it. If you do not clean it the chemical off it will coat the sides of the cylinder and you will not be able to read the cylinder markings.

Example of Calibration Cylinder



CLEAN UP AND STORAGE

SECTION F

DAILY CLEAN UP

When you have finished treating for each day, it is recommended to flush the unit with water to clear the lines of any remaining seed treatment chemical. If this is not done, the spray tips may become clogged and cause poor performance. As you near the end of the treating day, plan your clean up in advance and you will waste much less chemical. The amount of time required for clean up depends on how fast your are treating the seed. Begin the clean out process while you are treating. When you have about 5 minutes left of treating is usually a good time to start cleaning. Follow these steps below.

1. Don't' stop treating while you begin the clean out process. You want to use the chemical treatment in the lines to reduce waste.

2. Close the chemical tank shut off valve to stop the flow of chemical into the system.

3. Open the calibration cylinder valve to allow air into the system. If this is not done a vacuum will be created that will not allow the remaining chemical treatment to flow through the pump.

4. Allow the treater to continue treating. The purpose is to use up as much of the chemical treatment that is in the lines as possible. You will know when all of the chemical has been run through by seeing air bubbles in the discharge line of the pump.

5. As the last of the chemical moves through the pump and into the water stream you will notice the chemical colorant gets lighter and lighter as the clean out water dilutes and cleans it out.

6. Close the calibration cylinder valve.

7. Turn the Hand/Off Auto switch to Hand. Then turn the water switch to off.

8. Move the Process/Rinse valve to Rinse. Then open the water rinse valve located on the front of the mixing manifold. This should allow clean water to run through the filter and pump. Allow water to run until you see clear water coming out of the discharge side of the pump. Then close the water rinse valve to stop the flow of water.

9. Turn the Pump switch to Off. Turn the Water switch to On and allow clean water to flush through the lines and spray tips.

10. If you expect freezing temps in the near future, be sure you clean all water out of he lines. Also, check your filter and make sure all the water is emptied from that as well.

END OF SEASON CLEAN OUT AND STORAGE

At the end of the season remove all chemical from the 3 gallon reservoir and the filter body and clean with water. Pump water through the lines until clean. Then disconnect the chemical lines and drain all water from the system. Store inside until needed again next year. Tarp all equipment to keep any unwanted pests out of the spray hood or any other equipment. If you do not remove all water from the system, freezing could cause parts to break. If there is a chance the unit will be subjected to freezing temp, remove the chemical metering pump and place it where it will not freeze.

Mechanical Drawings

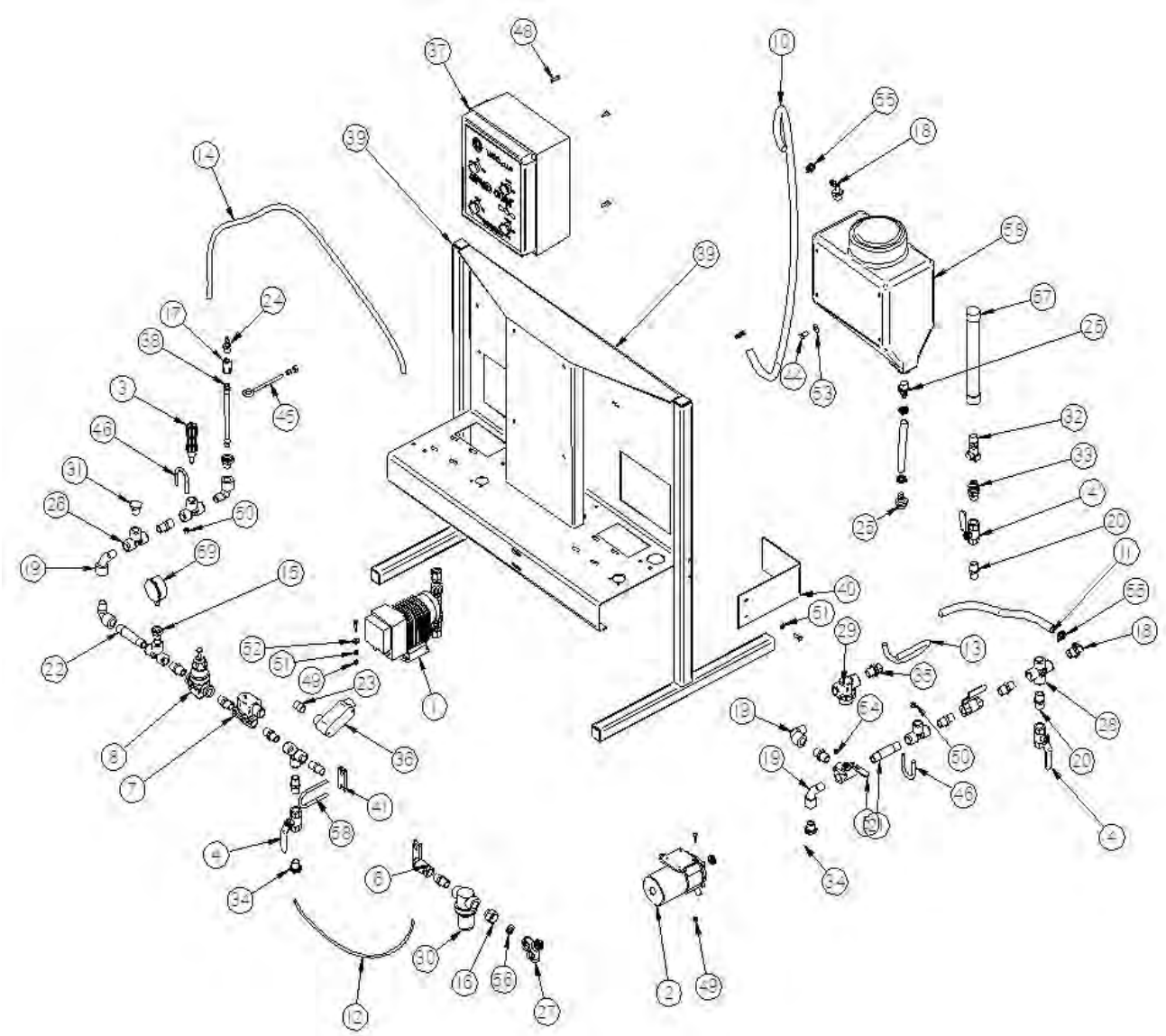
Section G

The following pages show the parts of your CT Series Seed Treater. Please have the part number ready when ordering parts.

An electrical wiring diagram is located in the control panel of the CT Series Seed Treater at the time of shipment. The diagram located in the panel shows the exact electrical schematic for that model of seed treater. If you have any questions about the diagram, please call your local USC dealer.

* Indicates a part not shown on picture.

CT Seed Treater

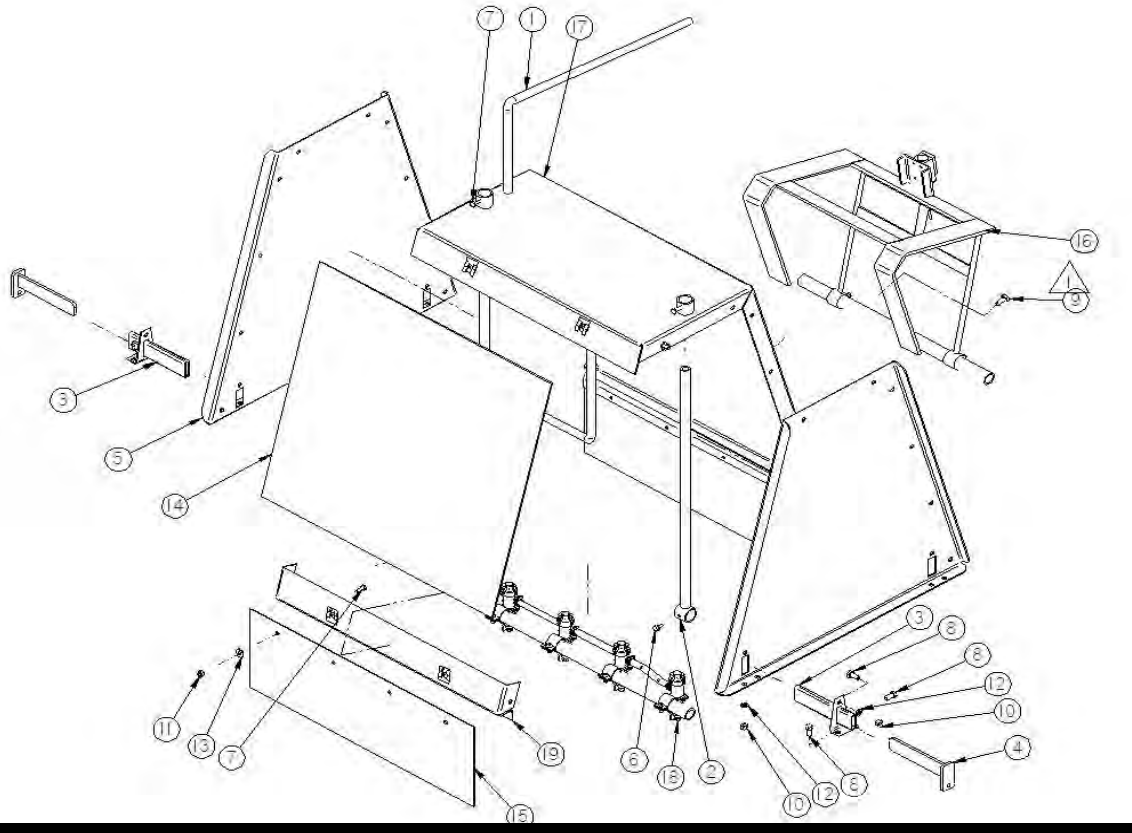


Item #	Doc #	Title	Qty
1	02-01-0002	MAGDOS PUMP - 1/2 GPH JESCO	1
2	02-01-0007	FASCO PUMP, 1/55 HP, 1750 RPM	1
3	02-02-0005	1/2-14 NPT X 1/2-14 NPT PVC CHECK VALVE	1
4	02-02-0006	VLV BALL .500 NPT 2WAY BRSS	4
5	02-02-0007	.500-14 NPT 3-WAY VALVE	1
6	02-02-0008	VLV CHK .500 NPT FM SS	1
7	02-02-0011	VLV SOL 115V PARKER AF4CO5	1
8	02-02-0016	REGULATOR,15-150PSI	1
9*	02-03-0005	TUBE,PLASTIC TANK TO VALVE	1
10	02-03-0005	TUBE,PUMP TO TANK	1
11	02-03-0005	TUBE,PUMP TO VALVE	1
12	02-03-0008	TUBE,VALVE TO VALVE	1

CT Seed Treater Parts List

Item #	Doc #	Title	Qty
13	02-03-0018	TUBE,PUMP TO VAVLE	1
14	02-03-0018	TUBE,CHECK VALVE TO PUMP	1
15	02-04-0001	1/2-14 NPT, REDUCER TO 1/4-18 NPT BP	2
16	02-04-0005	CONNECTOR, 1/2-14 NPT TO 3/4-14 NPT BRASS	1
17	02-05-0001	1/4-18 NPT, COUPLER GP	1
18	02-06-0010	FTTG 90 DEG .500HB X .500NPT ML NYL	2
19	02-06-0017	1/2-14 NPT,SL 90 DEG. BP	5
20	02-07-0009	FTTG NIP .500 NPT X 1.75 TBE BLK	12
21	02-07-0012	NIPPLE, 1/2-14 NPT X 3 1/2 GP	1
22	02-07-0014	NIPPLE, 1/2-14 NPT X 4 LONG GP	1
23	02-07-0049	NIPPLE, 1/2-14 NPT X 1/2-14 NPT BR	1
24	02-08-0002	3/8-18 NPT, 1/4 BARB,STRAIGHT WP	1
25	02-08-0007	FTTG STGHT .500HB X .500NPT ML NYL	2
26	02-09-0005	FTTG TEE .500 NPT PPE	5
27	02-10-0003	VALVE,SPLITER Y-SHUTOFF	1
28	02-11-0002	FTTG CROSS .500 NPT FM PPE	1
29	02-12-0001	1/2-14 NPT, STRAINER, 40 MESH	1
30	02-12-0002	FLTR TEE PPE .500 NPT 40 MESH LRG	1
31	02-14-0002	1/2-14 NPT,PLUG BP	1
32	02-15-0003	1/2-14 NPT, QUICK CONNECT CPC	1
33	02-15-0004	1/2-14 NPT,QUICK DISCONNECT,PLUG	1
34	02-16-0001	1/2-14 NPT X 1/4" COMPRESSION, BR	2
35	02-16-0002	FTTG COMP .500 OD X .500 NPT	1
36	03-09-0016	CNDT .500 BODY LBS	1
37	03-12-0007	ASSY,CONTROL BOX,POTATO	1
38	04-03-0003	STATIC MIXER, 1/4-18 NPT X 7 1/2 LONG	1
39	05-03-0015	WDMT,POTATO FRAME	1
40	05-10-0547	GUARD,VALVE PT	1
41	5/10/2168	SPCR PLT, 3/8" FOR 1 3?8" ID U-BOLT	2
42*	06-01-0006	BOLT .250-20 X .750 ZP GR5	6
43*	06-01-0007	BOLT, .250-20 X 1 UNC ZP GRADE 5	4
44	06-01-0010	BOLT .313-18 X .750 ZP GR5	4
45	06-01-0036	EYE BOLT, 5/16-18 G5 ZP 5.25	1
46	06-01-0037	BOLT U .313-18 X 1.00 X .375 ZP GR5	2
47	06-01-0160	U-BOLT, .3125-16 1.375 ID LONG FASTENALL 40219	1
48	06-01-0215	SCRW MACH #14 X .750 SS PLASTITE	4
49	06-02-0001	NUT FULL .250-20 ZP GR5	8
50	06-02-0002	NUT FULL .313-18 ZP GR5	8
51	06-04-0001	WSHR LOCK SPLT .250 ZP	6
52	06-05-0001	WASHER, FLAT .250	4
53	06-05-0003	WSHR FLAT .313 ZP	6
54	06-06-0008	SRCW,FLAT HD 10-24 X .250 ZP	2
55	06-07-0006	CLMP HOSE .500 TO .906 X .313W ZP	6
56	06-10-0002	WASHER,GARDEN HOSE	1
57	07-02-0001	CALIBRATION TUBE	1
58	07-02-0004	3 GAL. REC. TANK W/CAP	1
59	07-03-0001	GAUGE 60PSI .250 NPT ML	1

CT Seed Treater Hood



Item #	Doc #	Rev	Title	Qty
1	02-03-0004	A	HOSE RNT .375 CLEAR	1
2	05-04-0003	A	WDMT,SPRAY BAR HOLDER	2
3	05-04-0013	A	WDMT,ADJ. LEG BASE	4
4	05-04-0014	A	WDMT,ADJ.LEG INSERT	4
5	05-10-0021	A	SHEET, END CAP	2
6	06-01-0004	A	BOLT .250-20 X .500 ZP GR5	2
7	06-01-0006	A	BOLT .250-20 X .750 ZP GR5	10
8	06-01-0010	A	BOLT .313-18 X .750 ZP GR5	30
9	06-01-0015	A	BOLT .375-16 X 0.75 ZP GR5	2
10	06-02-0002	A	NUT FULL .313-18 ZP GR5	26
11	06-03-0001	A	NUT NYL LOCK .250-20 ZP GR5	8
12	06-04-0002	A	WSHR LOCK SPLT .313 ZP	26
13	06-05-0001	A	WASHER, FLAT .250	8
14	07-04-0008	A	CLEAR HOOD FACE	1
15	11-02-0002	A	RUBBER,8" X 24"	2
16	13-03-0015	A	ASSY PT SWING GATE	1
17	13-03-0017	A	WDMT, 24iN PT HOOD SEC	1
18	13-03-0022	A	ASSY 24 IN PT SPRY NZL	1
19	13-03-0023	A	24" VIEW PORT SUPPORT ASSEMBLY	1

LIMITED WARRANTY

SECTION H

USC, LLC, (Manufacturer) warrants its seed treating equipment as follows:

1. **Limited Warranty:** Manufacturer warrants that the Products sold hereunder will be free from defects in material and workmanship for a period of 12 months from date of shipment. If the Products do not conform to this Limited Warranty during the warranty period, Buyer shall notify Manufacturer in writing of the claimed defects and demonstrate to Manufacturer satisfaction that said defects are covered by this Limited Warranty. If the defects are properly reported to Manufacturer within the warranty period, and the defects are of such type and nature as to be covered by this warranty, Manufacturer shall, at its expense, furnish replacement Products or, at Manufacturer's option, replacement parts for the defective products. Shipping and installation of the replacement Products or replacement parts shall be at the Buyer's expense.

2. **Other Limits:** THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Manufacturer does not warrant against damages or defects arising from improper installation (where
installation is by persons other than Manufacturer), against defects in products or components not manufactured by Manufacturer, or against damages resulting from such non-Manufacturer made products or components. Manufacturer passes on to the Buyer the warranty it received (if any) from the maker of such non-Manufacturer made products or components. This warranty also does not apply to Products upon which repairs and/or modifications have been effected or attempted by persons other than pursuant to written authorization by Manufacturer. Manufacturer does not warrant against casualties or damages resulting from misuse and/or abuse of product(s), acts of nature, effects of weather, including effects of weather due to outside storage, accidents, or damages incurred during transportation by common carrier.

3. **Exclusive Obligation:** THIS WARRANTY IS EXCLUSIVE. The sole and exclusive obligation of Manufacturer shall be to repair or replace the defective Products in the manner and for the period provided above. Manufacturer shall not have any other obligation with respect to the Products or any part thereof, whether based on contract, tort, strict liability or otherwise. Under no circumstances, whether based on this Limited Warranty or otherwise, shall Manufacturer be liable for incidental, special, or consequential damages.

4. **Other Statements:** Manufacturer's employees or representatives' oral or other written statements do not constitute warranties, shall not be relied upon by Buyer, and are not a part of the contract for sale or this limited warranty.

5. **Return Policy:** Approval is required prior to returning goods to USC, LLC. A restocking fee will apply.

6. **Entire Obligation:** This Limited Warranty states the entire obligation of Manufacturer with respect to the Products. If any part of this Limited Warranty is determined to be void or illegal, the remainder shall remain in full force and effect.

USC, LLC

2320 124th road

Sabetha, Ks 66534

PHONE: (785) 431-7900

FAX: (785) 431-7950

EMAIL: sales-team@uscllc.com

WEB: www.uscllc.com